Page 17, before line 1, change "Figure 8. Illustration of the conversion of POSS and Silicate Nanostructures - Process III" to --Scheme 7--.

Page 17, line 2, after the word "nanostructures", insert --(see Scheme 8)--.

Page 17, bottom of the page, change "Figure 9. Illustration of the conversion of POSS Nanostructures - Process III" to --Scheme 8--.

Page 18, line 19, change "Figure 10" to --Scheme 9--.

Page 18, bottom of the page, change "Figure 10. Isomers for disfunctional, incompletely condensed POSS nanostructures "$[(RSiO_{1.5})_4(RSiO_{1.0})_2]_{\sum 6}$" to --Scheme 9--.

IN THE CLAIMS

Please delete claims 121, 123-127 and 129-133 without acquiescence in the Examiner's reasons for rejections and without prejudice to pursue in this or another application.

Please add new claim 134 and amend claims 8, 9, 13, 19, 22, 26, 27, 31, 33, 38, 44, 46, 51, 57, 59, 65, 71, 73, 78, 84, 86, 91, 97, 99, 112, 115, 120, 122 and 128 as follows:

8. (Amended) A process of converting a polymeric silsesquioxane into a POSS nanostructure compound, comprising:

mixing an effective amount of a base with the polymeric silsesquioxane in a solvent to produce a basic reaction mixture, the base reacting with the polymeric silsesquioxane to produce the POSS nanostructure compound,

wherein the polymeric silsesquioxane has the formula $[RSiO_{1.5}]_\infty$, and the POSS nanostructure compound is selected from the group consisting of homoleptic nanostructure compounds having the formula $[(RSiO_{1.5})_n]_{\sum\#}$, heteroleptic nanostructure compounds having the formula $[(RSiO_{1.5})_m(R'SiO_{1.5})_n]_{\sum\#}$, functionalized homoleptic nanostructure compounds having the formula $[(RSiO_{1.5})_m(RXSiO_{1.0})_n]_{\sum\#}$, and functionalized heteroleptic nanostructure compounds having the formula $[(RSiO_{1.5})_m(R'SiO_{1.5})_n(RXSiO_{1.0})_p]_{\sum\#}$, where R and R' each represents an organic substituent, X represents a functionality substituent, ∞ represents the

degree of polymerization and is a number greater than or equal to 1, m, n and p represent the stoichiometry of the formula, $\sum$ indicates nanostructure, and # represents the number of silicon atoms contained within the nanostructure.

B1

9. (Amended) ~~The~~ process of claim 8, wherein the base and the polymeric silsesquioxane are mixed by stirring the reaction mixture.

B2

13. (Amended) The process of claim 12, further comprising the step of purifying the isolated POSS nanostructure compound through washing with water.

B3

19. (Amended) The process of claim 8, further comprising mixing a co-reagent with the base and the polymeric silsesquioxane in the solvent.

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SUB D47

22. (Amended) A process of converting a polymeric silsesquioxane into a POSS fragment, comprising:

mixing an effective amount of a base with the polymeric silsesquioxane in a solvent to produce a basic reaction mixture, the base reacting with the polymeric silsesquioxane to produce the POSS fragment,

wherein the polymeric silsesquioxane has the formula $[RSiO_{1.5}]_\infty$, and the POSS fragment has the formula $[(RSiO_{1.5})_m(RXSiO_{1.0})_n]$, where R represents an organic substituent, X represents a functionality substituent, ∞ represents the degree of polymerization and is a number greater than or equal to 1, and m and n represent the stoichiometry of theformula.

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26. (Amended) The process of claim 25, wherein the POSS fragment is isolated by distillation, filtration, evaporation, decantation, crystallization, pressure reduction, or extraction, or a combination thereof.

B5

27. (Amended) The process of claim 26, further comprising the step of purifying the isolated POSS fragment through washing with water.

B6

31. (Amended) The process of claim 22, further comprising mixing a co-reagent with the base and the polymeric silsesquioxane in the solvent.

33. (Amended) A process of converting a mixture of different homoleptic POSS nanostructure compounds into a heteroleptic POSS nanostructure compound, comprising:

mixing an effective amount of a base with the mixture of different homoleptic POSS nanostructure compounds in a solvent to produce a basic reaction mixture, the base reacting with the mixture of different homoleptic POSS nanostructure compounds to produce the heterolepic POSS nanostructure compound,

B7

wherein the homoleptic POSS nanostructure compounds have the general formula $[(RSiO_{1.5})_n]_{\sum\#}$, and the heteroleptic POSS nanostructure compound is selected from the group consisting of a nonfunctionalized heteroleptic nanostructure compound having the formula $[(RSiO_{1.5})_m(R'SiO_{1.5})_n]_{\sum\#}$ and a functionalized heteroleptic nanostructure compound having the formula $[(RSiO_{1.5})_m(R'SiO_{1.5})_n(RXSiO_{1.0})_p]_{\sum\#}$, where R and R' each represents an organic substituent, X represents a functionality substituent, m, n and p represent the stoichiometry of the formula, $\sum$ indicates nanostructure, and # represents the number of silicon atoms contained within the nanostructure.

B8

38. (Amended) The process of claim 37, further comprising the step of purifying the isolated POSS nanostructure compound through washing with water.

B9

44. (Amended) The process of claim 33, further comprising mixing a co-reagent with the base and the mixture of different homoleptic POSS nanostructure compounds in the solvent.

46. (Amended) A process of converting a plurality of POSS fragments into a POSS compound, comprising:

mixing an effective amount of a base with the plurality of POSS fragments in a solvent to produce a basic reaction mixture, the base reacting with the POSS fragments to produce the POSS compound,

B10 SUB D7

wherein the POSS fragments have the formula $(RSiO_{1.5})_m(RXSiO_{1.0})_n$, and the POSS compound is selected from the group consisting of homoleptic nanostructure compounds having the formula $[(RSiO_{1.5})_n]_{\sum\#}$, heteroleptic nanostructure compounds having the formula $[(RSiO_{1.5})_m(R'SiO_{1.5})_n]_{\sum\#}$, functionalized homoleptic nanostructure compounds having the formula $[(RSiO_{1.5})_m(RXSiO_{1.0})_n]_{\sum\#}$, functionalized heteroleptic nanostructure compounds having the formula $[(RSiO_{1.5})_m(R'SiO_{1.5})_n(RXSiO_{1.0})_p]_{\sum\#}$, and expanded POSS fragments having the formula $(RSiO_{1.5})_m(RXSiO_{1.0})_n$, where R and R' each represents an organic substituent, X represents a functionality substituent, m, n and p represent the stoichiometry of the formula, $\sum$ indicates nanostructure, and # represents the number of silicon atoms contained within the nanostructure.

B11

51. (Amended) The process of claim 50, further comprising the step of purifying the isolated POSS compound through washing with water.

B12

57. (Amended) The process of claim 46, further comprising mixing a co-reagent with the base and the plurality of POSS fragments in the solvent.

B13

59. (Amended) A process of converting a first functionalized POSS nanostructure compound into a second functionalized POSS nanostructure compound that is different than the first functionalized POSS nanostructure compound, comprising:

mixing an effective amount of a base with the first functionalized POSS nanostructure compound in a solvent to produce a basic reaction mixture, the base reacting with the first

functionalized POSS nanostructure compound to produce the second POSS nanostructure compound,

wherein the first and second POSS nanostructure compounds are each selected from the group consisting of homoleptic nanostructure compounds having the formula $[(RSiO_{1.5})_n]_{\sum\#}$, heteroleptic nanostructure compounds having the formula $[(RSiO_{1.5})_m(R'SiO_{1.5})_n]_{\sum\#}$, functionalized homoleptic nanostructure compounds having the formula $[(RSiO_{1.5})_m(RXSiO_{1.0})_n]_{\sum\#}$, and functionalized heteroleptic nanostructure compounds having the formula $[(RSiO_{1.5})_m(R'SiO_{1.5})_n(RXSiO_{1.0})_p]_{\sum\#}$, where R and R' each represents an organic substituent, X represents a functionality substituent, m, n and p represent the stoichiometry of the formula, $\sum$ indicates nanostructure, and # represents the number of silicon atoms contained within the nanostructure.

B13

65. (Amended) The process of claim 64, further comprising the step of purifying the isolated POSS nanostructure compound through washing with water.

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71. (Amended) The process of claim 59, further comprising mixing a co-reagent with the base and the first functionalized POSS nanostructure compound in the solvent.

B15

73. (Amended) A process of converting a POSS fragment and a first POSS nanostructure compound into an expanded second POSS nanostructure compound having a number of silicon Si atoms equal to the combined number of silicon atoms present in the POSS fragment and in the first POSS nanostructure compound, comprising:

B16

mixing an effective amount of a base with the POSS fragment and the first POSS nanostructure compound in a solvent to produce a basic reaction mixture, the base reacting with the POSS fragment and the first POSS nanostructure compound to produce the expanded second POSS nanostructure compound,

wherein the POSS fragment has the formula $(RSiO_{1.5})_m(RXSiO_{1.0})_n$, and the first and second POSS nanostructure compounds are each selected from the group consisting of

homoleptic nanostructure compounds having the formula $[(RSiO_{1.5})_n]_{\sum\#}$, heteroleptic nanostructure compounds having the formula $[(RSiO_{1.5})_m(R'SiO_{1.5})_n]_{\sum\#}$, functionalized homoleptic nanostructure compounds having the formula $[(RSiO_{1.5})_m(RXSiO_{1.0})_n]_{\sum\#}$, functionalized heteroleptic nanostructure compounds having the formula $[(RSiO_{1.5})_m(R'SiO_{1.5})_n(RXSiO_{1.0})_p]_{\sum\#}$, and silicate nanostructure compounds having the formula $[(XSiO_{1.5})_n]_{\sum\#}$, where R and R' each represents an organic substituent, X represents a functionality substituent, m, n and p represent the stoichiometry of the formula, $\sum$ indicates nanostructure, and # represents the number of silicon atoms contained within the nanostructure.

78. (Amended) The process of claim 77, further comprising the step of purifying the isolated POSS nanostructure compound through washing with water.

84. (Amended) The process of claim 73, further comprising mixing a co-reagent with the base and the POSS fragment and the first POSS nanostructure compound in the solvent.

86. (Amended) A process of converting an unfunctionalized POSS nanostructure compound into a functionalized POSS nanostructure compound, comprising:

mixing an effective amount of a base with the unfunctionalized POSS nanostructure compound in a solvent to produce a basic reaction mixture, the base reacting with the unfunctionalized POSS nanostructure compound to produce the functionalized POSS nanostructure compound,

wherein the unfunctionalized POSS nanostructure compound is selected from the group consisting of homoleptic nanostructure compounds having the formula $[(RSiO_{1.5})_n]_{\sum\#}$ and heteroleptic nanostructure compounds having the formula $[(RSiO_{1.5})_m(R'SiO_{1.5})_n]_{\sum\#}$, and the functionalized POSS nanostructure compound is selected from the group consisting of functionalized homoleptic nanostructure compounds having the formula $[(RSiO_{1.5})_m(RXSiO_{1.0})_n]_{\sum\#}$ and functionalized heteroleptic nanostructure compounds having the formula $[(RSiO_{1.5})_m(R'SiO_{1.5})_n(RXSiO_{1.0})_p]_{\sum\#}$, where R and R' each represents an organic

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substituent, X represents a functionality substituent, m, n and p represent the stoichiometry of the formula, $\sum$ indicates nanostructure, and # represents the number of silicon atoms contained within the nanostructure.

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91. (Amended) The process of claim 90, further comprising the step of purifying the isolated functionalized POSS nanostructure compound through washing with water.

B21 SUB D14

97. (Amended) The process of claim 86, further comprising mixing a co-reagent with the base and the polymeric silsesquioxane in the solvent.

B22

99. (Amended) A process of rearranging the structure of a compound selected from the group consisting of POSS fragments having the formula $[(RSiO_{1.5})_m(RXSiO_{1.0})_n]$, silicate nanostructure compounds having the formula $[(XSiO_{1.5})_n]_{\sum\#}$, homoleptic nanostructure compounds having the formula $[(RSiO_{1.5})_n]_{\sum\#}$, heteroleptic nanostructure compounds having the formula $[(RSiO_{1.5})_m(R'SiO_{1.5})_n]_{\sum\#}$, functionalized homoleptic nanostructure compounds having the formula $[(RSiO_{1.5})_m(RXSiO_{1.0})_n]_{\sum\#}$, and functionalized heteroleptic nanostructure compounds having the formula $[(RSiO_{1.5})_m(R'SiO_{1.5})_n(RXSiO_{1.0})_p]_{\sum\#}$, the process comprising:

mixing an effective amount of a base with the compound in a solvent to produce a basic reaction mixture,

where R and R' each represents an organic substituent, X represents a functionality substituent, m, n and p represent the stoichiometry of theformula, $\sum$ indicates nanostructure, and # represents the number of silicon atoms contained within the nanostructure.

B23

112. (Amended) The process of claim 99, further comprising mixing a co-reagent with the base and the compound in the solvent.

B24 115. (Amended) The process of claim 46, wherein the POSS compound is $[RSiO_{1.5})_4(RXSiO_{1.0})_3]_{\sum 7}$.

B25 120. (Amended) A compound comprising a member of the group consisting of homoleptic nanostructure compounds having the formula $[(RSiO_{1.5})_n]_{\sum\#}$, heteroleptic nanostructure compounds having the formula $[(RSiO_{1.5})_m(R'SiO_{1.5})_n]_{\sum\#}$, functionalized homoleptic nanostructure compounds having the formula $[(RSiO_{1.5})_m(RXSiO_{1.0})_n]_{\sum\#}$, and functionalized heteroleptic nanostructure compounds having the formula $[(RSiO_{1.5})_m(R'SiO_{1.5})_n(RXSiO_{1.0})_p]_{\sum\#}$, where R and R' each represents a functionality substituent, X represents a functionality substituent, ∞ represents the degree of polymerization and is a number greater than or equal to 1, m, n and p represent the stoichiometry of the formula, $\sum$ indicates nanostructure, and # represents the number of silicon atoms contained within the nanostructure.

B26 122. (Amended) A compound having the formula $[RSiO_{1.5})_m(RXSiO_{1.0})_n]$, where R represents an organic substituent, X represents a functionality, and m and n represent the stoichiometry of the formula.

B27 SUB D16 128. (Amended) A compound having the formula $[(XSiO_{1.5})_n]_{\sum\#}$, where X represents a functionality substituent, n represents the stoichiometry of the formula, $\sum$ indicates nanostructure, and # represents the number of silicon atoms contained within the nanostructure.

B28 134. (New) The process of claim 99, wherein the structure of the compound is rearranged so that the compound is converted into an isomer of the same compound.

REMARKS